

The Collector General.
DIARY

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OF

PRACTICAL OBSERVATIONS

ON

Malignant Cholera

AT

NEW-YORK.

**DESCRIBING THE SYMPTOMS AND TREATMENT OF
THE DISEASE IN ALL ITS STAGES.**

WITH

**A statement of cases, and a variety of information connected with
and illustrative of the subject.**

BY

WILLIAM DONNELLY, M. D.

SURGEON, ROYAL NAVY.

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Published by the Central Board of Health of Nova-Scotia,  
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Diary of Practical Observations, &c.

Central Board of Health,

Halifax, Nova Scotia, August 10th, 1852.

This Board having been informed that William Donnelly, Esq. M. D. Surgeon in the Royal Navy, and an Honorary Member of the Board, a gentleman of high personal and professional reputation and character, is about to proceed to the United States, for the purpose of obtaining information with regard to Spasmodic Cholera,

Resolved unanimously, That this Board respectfully request all Health officers, Boards of Health, Medical Practitioners, and persons in authority in the United States, to facilitate that gentleman's inquiries after information now so especially interesting to this province. In making this request, the Board has the satisfaction to declare, that, under the blessing of a merciful Providence, no case of that malignant disease has, to their knowledge or belief, yet made its appearance in this province; and it is with deep regret, and sympathy for their neighbors in the United States, that this Board are aware, that Dr. Donnelly can be enabled, on so short a voyage, personally to examine the symptoms and effects, and ascertain the treatment of that dreadful malady.

In behalf of the Central Board of Health at Halifax, Nova Scotia,

Henry H. Cogswell, President.

William Cogswell, Secretary.

Halifax, 13th September, 1832.

GENTLEMEN,—

On being acquainted with my intention of visiting New York, for the purpose of obtaining information regarding Malignant Cholera, you did me the favour to request the Boards of Health and other civic Authorities in the United States, to facilitate my inquiries.

On my return, I have the honour to inform you, that your introduction procured for me every attention and every facility that could gratify or serve me.

Mr. Wells, the Mayor of Boston, and chairman of the Health Commissioners, was most courteous, frank and obliging, but that city, though in the freest communication with New York, indeed occupied (to the overflowing of the hotels) by thousands of its citizens from the first appearance of the disease there, in the end of June, had nothing to show me on the 21st of August, but empty Cholera hospitals, these certainly admirably appointed, with a finish not to be expected in such temporary establishments. It is true, however, that ten days previously two cases of Malignant Cholera had terminated fatally in the same house, at Boston; that this house had been visited by a sailor not many days from New York; and that his clothes had been washed by one of the two sisters who died of Cholera. Yet it could only be verified that this man came from New York; it not appearing that either he or any of the ship's crew had had Cholera.

Leaving Boston, I arrived at New York on the morning of the 23d, and without loss of time, I waited on Mr. Bowne, the Mayor, and President of the Board of Health. This officer readily did what was necessary, giving me an order of admission to all the cholera hospitals, and a letter of introduction to Doctor Stevens, the President of the select Medical Council to the Board of Health.

The way being thus opened, it only remained for me to make the best use of the time I could conveniently remain in New York. By wasting none, and exclusively devoting myself to the pursuit on which I had entered, I have been enabled to collect from the practice of eight hospitals, as witnessed myself, or informed thereof by the respective physicians; from my own observations on the greater part of 260 patients contained in these establishments the first days of my being in the city, and on the majority of 100 more admitted into them during the time of my stay, as well as on a few in private practice; but more especially from a fixed and devoted attention to the cases and details in a particular hospital (Crosby street) where the disease, in its worst form, seemed at that period particularly to concentrate; from the opinions and experience of the physicians of the hospitals and others; and from the knowledge of the Medical council, a rather large body of information, embracing, I believe, every question of interest connected with malignant cholera.

Having obtained this information, it was a matter of con-

sideration with me, on my return hither, how best and most satisfactorily to communicate to you and this community the knowledge obtained.

I first thought of drawing from the whole the several conclusions fairly deducible in my own judgment from the facts acquired, and to give these as the results of my inquiries. But feeling that these would still be considered rather as the opinions of an individual, than the fair and impartial conclusions from facts, and that, consequently, my information would be useless in as far as it was not followed by adequate practical application, I determined to throw into such form as my circumstances and time would allow the diary and case-book which I kept; to submit this abridged compilation to the Board and leave it to them to draw the practical conclusions; as regards external quarantine, internal medical police, the symptoms and treatment of the disease; as regards, in short, every circumstance of interest connected with the subject.

And though in doing this I entail upon the Board the trouble of reading my diary, and of thence drawing these conclusions, yet as I have had far more trouble in collecting the materials that compose it (putting out of the question the disgust of twenty days spent on board a mail boat, and the fatigue of travelling) and yet do not regret my fatigues and discomforts, I cannot doubt the Board will readily undertake the part I have left for them.

In reference to the opinion that my labours have not been thrown away, and without doing what I profess not to do, drawing conclusions, as the circumstance solely concerns my own feelings, I now freely tell you, that when I thought of going to New York, convinced of the contagious nature of cholera, believing in its ready communicability, and uncontrollable malignity, I was not a little startled just the day I left this shore, to learn from the papers the death of several physicians, amongst them of one who had gone from Boston to see the disease, on his return from New York, and of several clergymen. Still, not alone the impatience of ignorance, but also the belief that my intentions were benevolent, and especially the persuasion that I was in the hands of my Creator for life or death, determined me in my previous intentions.

These then were my sentiments on going. I have now only to state what they are on returning. Still, that it is a disease communicable from person to person, and that, if advanced to a certain stage, it is a malignant and fatal one; but that 499 persons out of 500, I might venture to say 999 out of 1000, may pass, as I did, with impunity half of the 24 hours every day in the wards of a well ventilated hospital, filled with it, only by denying themselves so as not to deviate from a primitive simplicity of living, and giving ordinary attention to the first obvious introductory symptoms of diarrhoea or other abdominal uneasiness, (ailments, when occurring, of

little inconvenience and easily controllable) possessing in these very easily observed rules as assuredly efficacious preventives of cholera as vaccination is of small pox. I do not say this because I and Doctor Sawers have returned intact, or because that of the seven hundred medical practitioners of New York only eight have died of cholera, in whom also there was neglect of the preservative rules, or exhaustion from worrying and anxious attention to the sick. These of themselves would be strong grounds, but I have also the concurrent conviction of the whole body of medical observers in that city, especially those who have had the charge of the wards into which it was distributed, chiefly for these preventive purposes, and of the authorities who receive reports from those employed under them.

Should the facts that I have gathered produce a similar conviction, not alone in the minds of the Board, but in those of the inhabitants of Nova-Scotia in general, it will, I think beget a valuable confidence, overcome selfish fears, and diffuse a philanthropy, when its helping hand is required, that will repay my toils, and by this alone more good would be done than I ventured to promise myself, for I was far from being confident of making myself useful.

The President of the Medical Council very kindly permitted me to submit to that body the questions that appeared to me of most interest on the subject of Cholera, and I have been obligingly furnished with answers to them. This document of itself is very important, but it becomes still more valuable as additional and weighty evidence confirmatory of the facts and observations contained in the diary. These papers I forward to the Board, and with them, as fuller replies to my queries, some questions of the Governor of the State of New York, and of the Board of Health of that City, with the replies, after investigation, of the Medical Council.

The Board are the competent judges of the value of the Diary and of the other papers accompanying it, as well as of the manner, of making them most useful to the Community, I therefore wait its determination regarding them, and have the honor to remain, Gentlemen,

Your most humble servant,

WM. DONNELLY.

To the President and Members of the }
Central Board of Health, Halifax. }

Central Board of Health,

Halifax, September 17, 1832.

Dr. Donnelly having recently returned from the United States, where he has had many opportunities of personally examining many cases of Spasmodic Cholera, and having communicated the result of his observations thereon, and much valuable information which he had collected on the subject to this Board, and the Board having duly considered the same;

Resolved, That the thanks of this Board be presented to Dr. Donnelly for his very interesting and important communication.

And this Board being of opinion that the publication of the Diary of Dr. Donnelly would be of eminent service to the Medical profession, as well as of great utility to the Province at large, should the Spasmodic Cholera visit this Province,

Resolved, That Dr. Donnelly be requested to cause 300 copies of his Diary to be published for general information; and that this Board will defray the expense thereof, and that Dr. Donnelly be requested to accept of 150 copies for his own use.—[Extract from the Minutes.]

WILLIAM COGSWELL, Secretary.

PARK HOSPITAL.

New York August 23, 1832.—Shortly after my arrival this morning I waited on Mr. Bowne, the Mayor, accompanied by Mr. Cochran. He expressed himself every way disposed to assist me in obtaining information regarding Cholera, gave me an order of general admission to all the Hospitals established by the Health Commissioners, and a letter of introduction to Dr. Stevens, the President of the Special Medical Council, desiring me to return to him whenever I found it convenient.

At 2 P. M. I visited the Park Hospital, under the direction of Dr. Tappen, with two resident assistant physicians. This building contains about 36 beds, and, since the 4th July, 550 patients have been received into it. At present there are 22, chiefly convalescents from mild attacks of Spasmodic cholera: three of them were admitted yesterday before the symptoms had proceeded to collapse; they are doing well, using the carbonate and muriate of soda, as recommended by Dr. Stevens; but they would, Dr. Tappen says, have recovered under the usual treatment. One woman, who looks very likely to sink, has all the appearance of an advanced typhus, without the heat of fever; the lips are covered with serous film. This, Dr. Tappen says, is a very common sequel of cholera. He says the premonitory symptoms very generally precede the actual attack of cholera, and if they are arrested the disease is cut short. The state of collapse is best treated, he says, by the internal use of calomel, conjoining opium

if there be spasms, and by external heat. In private practice he has had 30 cases of cholera, and since he adopted the practice just stated, he has only lost one, an intemperate old person, and far advanced in collapse when first seen. Previously to this, on the 3rd and 5th of July, he lost two, trusting chiefly to stimulants, as recommended by the Edinburgh Board of Health. In the low typhoid state he gives carbonate of ammonia.

In tracing the origin of the cases brought to the hospital, he states that two, three, or even more have often come from the same family, and that certain infected wards or districts of the city have sent the majority of the cases.

All the nurses and attendants, including the physicians, have had the disease or the premonitory symptoms, and five nurses have died. One nurse I saw in bed to-day; she had been taken ill a few hours before; it was not expected to be severe, much less fatal. One of the assistant physicians told me he had hardly been free from diarrhoea since he took up his residence in the hospital; and they all said they felt the morbid influence of a cholera atmosphere; yet they say the disease is not contagious, but atmospherical; that is, its cause is in the general atmosphere.

No treatment, Dr. Tappen says, will avail when collapse rapidly forms, yet the great mortality at the first breaking out of the disease in the City, was much owing the total want of preparation to meet it, as no houses were fixed on for hospitals, there of course were no nurses or attendants provided, thus fully verifying what one of the Boston Medical deputation told me of his seeing the sick, dying and dead crowded together.

One of the assistant physicians of the Park Hospital being on his way to visit a private patient, liberally invited me to accompany him. The patient was a Negro boy, and we found he had died an hour before; this my friend did not expect.

August 29.—It having been determined to shut up two of the six Cholera hospitals in the city, only two patients were received into the Park hospital after my arrival. Four deaths have taken place since the 23d, all, I believe, from congestion or consecutive fever.

GREENWICH HOSPITAL.

August 24.—Doctor Roe, the superintending physician of the spacious, well ventilated hospital at the village, of Greenwich, kindly called upon me to-day, and afterwards carried me to the hospital, and described to me his practice in cholera. He is very sanguine, and believes he has been particularly successful; however, some patients, he says, will die in collapse. He speaks of his treatment of the premonitory

* August 24.—This woman is now up and attending to her duty; she was completely relieved by bleeding.

symptoms with great satisfaction. It consists of warm-injections of Catmint tea, linseed tea, or even warm water; bathing the feet in warm water in which has been infused a quantity of capsicums, and rubbing the abdomen with Cayenne pepper, or with an ointment composed of this and the Ungt. Hydr. Camphor. Frictions with this ointment, are the only means used by him in the state of collapse, the mercurial frictions being succeeded by rubbing with dry heated chalk. No internal medicine (or at least very rarely any) being given. Camphor, so much talked of as a specific, he finds to be a good antispasmodic.

There are only eleven patients in the house at present, none in collapse, and therefore none in which there are the characteristic distinctive features of the disease; yet some of them appear to me in a state of great exhaustion, however they may seem to those conversant with the worst forms of the disease comparatively unworthy of notice. Others have the consecutive fever, and two have severe pytalism from the frictions that have been used. In eleven cases the warm saline venous injections have been used, but only in one (which I saw) with ultimate recovery.

August 28th.—On repeating my visit to this hospital to-day, I did not find any case of marked cholera. Of those that are in the house part are the same as I saw on the 24th; others are of a similar nature, and some are actual dysentery, or symptoms approaching to this disease, occasioned chiefly by the powerful action of mercury on the system. Doctor Ree tells me that by the diligent use of the camphorated mercurial capsicum frictions he has induced pytalism in as little as six hours.

CROSBY-STREET HOSPITAL.

Thursday, August 23, 7 P. M.—I have just returned from visiting Crosby-street cholera hospital. The building now used for this purpose, is the New York High School, consisting of three large rooms, capable of containing each from 15 to 20 beds, and six smaller rooms. At present there are only two men and nine women; but, as the Park hospital does not any longer admit patients, and Crosby-street is the nearest, the worst cases of both vicinities are necessarily carried thither; hence it is, that whilst the twenty-two patients at the Park hospital present to the young observer of the disease little that would distinguish them from the same number of patients labouring under severe diarrhoea, dysentery, cholera communis, and typhus fever, or the languor and exhaustion consequent on these, the eleven at the High School (with the exception of one man fully convalescent, and two women who are considered so, though to me they look in a precarious state,) have left impressed on my mind a picture of deadly pestilence, yet without harrowing the feelings by the sight of agonising sufferings; indeed the look is generally that of calm, hopeless resignation, and quiet appeal, chiefly for drink, though there

also are indications of deep oppression in the frequent jactitation, the tossing about of the body being done with an energy which either indicates remains of real strength, or a temporary exertion, the effort of suffering. All of them had diarrhoea, or other abdominal uneasiness, from a day to a week, before the actual invasion of the disease by which they are now prostrated.

One (Atkinson) has the typhoid stupor (not coma) without the heat or sordes of typhus. This is the third day.

One has the mental weakness of typhus that requires much rousing to elicit an answer, apparently from mere exhaustion. The voice is only weak, not peculiar; the face is livid; the tongue cold, as is every part of the body; a deeper livid, almost blue circle surrounds the eyelids; the fingers, hands, toes and feet are quite blue, the skin shrivelled—no pulse, the action of the heart only being just felt; yet there is no perspiration—the makes no complaint; is considered hopeless. Gets large doses of calomel, and aromatic stimulant tinctures. She had also been bled. Six without the blueness of this case, remind me of the appearance of a person on the point of being sea-sick; they have, however, in fact just got a respite from purging, under which they have been labouring for from 10 to 14 hours, together with vomiting, which yet from time to time recurs in three of them, of a thin darkish fluid, with a yellowish tinge, having some flocculi floating in it; this is small in quantity, as they are only allowed ice, though they are not satisfied with it, but urgently ask drink, one of them wishes it warm. Any fluid drunk immediately causes a return of the vomiting. In one of these patients there had been distressing cramps of the legs, which were removed chiefly by friction and the application of tight ligatures to the thighs.

Though they are all considered better, under the administration of calomel and the use of ice, with cupping at the præcordia, in some of them the pulse cannot be at all felt, and in others it is extremely feeble. No mattress or other tin for containing warm water, and adapted to different parts of the body, is provided in this or any of the hospitals I have yet seen; and indeed the application of external heat in any way, does not seem to command attention: after the rubbing a single blanket generally forms the only covering, and from the restlessness of the patients this is seldom applied to the extremities; occasionally a bottle of warm water, a brick, or a cold bag is placed to the feet, but the extreme coldness in these cases imperiously indicates the necessity for a more efficient, more general, and more assiduous application of external warmth, as well as of warm enemata, and perhaps also of warm drink. Were this done, the cooling effect of the free circulation of air through every window of the ward, otherwise beneficial to the patients, and essential to the health of the attendants, might be counteracted. The frictions, composed of an incorporation of camphor and Cayenne pepper, in simple

ointment, to which is added about a twentieth part of muriatic acid, followed by rubbing with dry heated chalk, do in some degree restore the warmth, and sinapisms are also serviceable in this way. In one patient the only warm spot is just round the præcordia.

In this hospital also, all the attendants on the sick, as well the physicians and nurses as the men employed in carrying the sick from their homes to the hospital, and removing the dead, with two or three exceptions, have had premonitory symptoms or attacks of the disease, and two nurses have died.

Doctor Rhinelander has the superintendence of the Crosby-street hospital, assisted by Doctor De Kay and two resident house physicians, and a chemist, chiefly employed in analyzing the blood, excrements, &c. in cholera. The venous injection was first used in New York by Dr. Rhinelander, the operation has been performed ten times in this hospital, but with complete success and ultimate recovery of all in two, the patients being then in a state of advanced collapse, as were also all the others before recourse was had to the injection. In these two, the almost instantaneous restorative power is triumphantly stated even by the nurses. In the others the revival continued only for a short time. Death is believed to have been a little accelerated in one from the accidental introduction of air: the patient lived about a quarter of an hour afterwards. To obviate the recurrence of such an accident, Dr. Rhinelander has adapted to an elastic tube a stop cock, with an ivory pipe, the fluid flowing by its own weight and the atmospheric pressure from a glass funnel introduced into the upper extremity of the tube. The practice having given occasion to much talk, and an opinion having obtained that it is only done to make experiments on the poor patients, it is now less resorted to, though it has never been had recourse to here except where there was no hope of recovery.

All the attendants that have been employed in the hospital since the breaking out of the disease, attest the frequency of receiving two, three or more patients from the same house, yet it is a circumstance not stated on the records kept of the cases.

August 24th.—At 7, A.M. this morning, I found that three patients had been received in the night, and two were just put to bed as I went in. Of these five, four were men and one was a woman. The latter was vomiting an aqueous fluid, transparent, or at least only perturbed by a few small white flocculi; and this exactly resembled the alvine dejection of another, then shown to me by the nurse as a sample of the peculiar discharges called rice-water vomiting or purging.

This woman (young) was represented as sinking rapidly in collapse. The whole surface was livid, the face especially, and deadly cold, and no pulse was perceptible. She had been taken ill in the night, in a house where others had died of the disease.*

*This woman died the following night, having gradually sunk.

Of the men who were just received, one was in complete or fully formed collapse; the whole surface was bluish, the face, hands and feet especially, the inferior part of the face of a leaden hue, the fingers and toes longitudinally shrivelled, the nails incurvated—no pulse was perceptible; the voice was low, weak and peculiar—the tongue was cold, and the eyes were sunken. His wife was standing by him, but unnoticed. He only craved relief from cramps in his legs and thighs, which distressed him greatly. These were much mitigated by the application of ligatures and by diligent frictions, with the camphorated capsicum and muriatic acid ointment, by two men with flesh brushes.* There was neither purging nor vomiting. A scruple of calomel was given, brandy and water being ordered for drink.—A Catholic priest, who is represented as indefatigable in his attendance at the hospital, administered the last rites of religion whilst I was there.†

Another of the cases was distinguished by distressing spasms in the legs and thighs, which were evidently extending along the hips, loins and back. The pulse was barely perceptible at the wrist, not at all during the severity of spasm, and the colour of the face was changing to choleric. The experienced eye of an intelligent nurse, saw that in this man the symptoms were fast gaining ground, and I heard him say to his companion, who was assisting him in rubbing the patient last noticed, "let us leave this one, to assist that of which there is some hope." They accordingly commenced the frictions, having applied ligatures on the thighs, and there was soon a little improvement in the pulse. This encouraged the assistant physician to open a vein. The good effect of the abstraction of ten ounces of blood was most marked: the spasms entirely and immediately ceased, the countenance became composed, and he soon went to sleep, after intelligibly stating that he was taken ill at midnight, with nausea (not much vomiting) and severe cramps, and that he had had a disposition to vomit the preceding night, which however subsided. He is a shoe-maker, at present filling the place of a person who a fortnight before died of cholera, a woman also having had the disease in the same house, and recovered.‡

Of the other two men, one, the assistant physician says, is not cholera, but slight diarrhoea conjoined with the debility and exhaustion consequent on intoxication. The second, a consumptive subject, though sent in by one of the ward physicians, is only slight diarrhoea. I see here the difficulty,

*The proportions of these substances are: a pound of simple ointment—eight ounces of camphor finely powdered, and the same quantity of Cayenne pepper, to which, after they are incorporated, is added an ounce of Muriatic acid.

†This man also died in the night.

‡This man continued regularly to amend, but his mouth became very sore from the calomel he had taken. On the 28th he was sent to the convalescent hospital.

if not impossibility of predicting what will prove to be a case of malignant cholera during the premonitory stage; or even when its approach is near, until the supervention of cramps, the failure of the circulation, and the sinking of the temperature of the body diagnostically characterize the case; before the cold soft tongue, the sunken eye, weather-beaten face and shrivelled hands set their fearfully certain impress upon it.

The foregoing case of incipient collapse, induced me to ask the attendants whether bleeding was not frequently resorted to under similar circumstances, and I was informed that in consequence of its real or supposed ill effects in some cases of collapse, it was almost proscribed in that state, but that it had frequently produced the most marked relief in severe cramps, and in oppression at the præcordia.

One of the assistant physicians, generalizing, says I must already perceive that there can be no uniform plan of treatment in cholera, so much must be left to the judgment of the practitioner.

At noon I again visited the hospital, where for the first time I met Dr. De Kay. Another patient was then just brought in, a sailor lately arrived from Philadelphia. He had had gastric derangement and diarrhœa for a fortnight, but only last night was taken alarmingly ill, with purging, vomiting and cramps. He is now pulseless and livid, but not, Dr. De Kay says, in fully formed collapse; the prostration of strength seems less than might be expected with the other symptoms. The Doctor thinks that from his vigorous constitution he will survive, which I hardly expected to be told.*

August 25.—In the morning I found that eleven cases had been admitted from the time of my leaving last night; and two more have been brought in this evening. Of these thirteen, one is actually delirium tremens, without any apparent symptoms of cholera, another is a relapse in a woman who had been in the house before for cholera, four are mild cases of bilious diarrhœa and vomiting, and seven are in different degrees of collapse, of which they are illustrative specimens, and as such I introduce them here, abridged from my detailed notes taken in the hospital.

Approaching Collapse.—Conklin, aged 60, after two days of diarrhœa, was seized at 2 A. M. with increased purging,

*This fine athletic young man, had revived to considerably in the afternoon, using the frictions and taking calomel and opium, that his father and other friends who accompanied him, were told they might return to their ships satisfied that he would do well. Not long after this, about 3 P. M. he suddenly started up, made a convulsive effort to get out of bed (but was replaced by an attendant) and in five minutes expired.—On this occasion I was informed, that three or four equally sudden if not so unexpected deaths had occurred to them, the patients having jumped out of bed, walked about the Room, and almost instantly expired on being replaced.

vomiting and cramps, having, also some pains at the præcorpium. At 4. 30 p. m. he was brought to the hospital—the pulse then quick, skin natural, tongue tepid and furred, voice a whisper, incipient livor of the face, hands shrivelled. *Treatment*—Frictions—Calomel and opium—Brandy and water for drink.*

Incipient Collapse.—Brown, aged 26, just arrived at New York from Elizabeth Town, where he took possession, on Wednesday, of a house in which four of its occupants had died of cholera the preceding Monday. It had been well washed, he said, before he went into it. From Wednesday he had a diarrhoea. This morning (Saturday) at 11 a. m. vomiting and cramps came on; and when admitted at 4 p. m. the pulse was feeble, but distinct, and the skin and tongue were cold. Same treatment as Conklin†

Fully formed Collapse.—Meggaria, aged 36, was seized last night with vomiting, purging and cramps, attended by great thirst. On admission this morning, the pulse was feeble, skin cool, tongue cold, moist and furred; and the face was livid. At 2 p. m. he appeared weaker, and there was constant jaetitation. At 5 the eyes were sunken, the fingers and toes were blue and shrivelled—there was much thirst, and he was very restless. At 6 p. m. had a sero-sanguineous dejection, not unlike port wine. The treatment the same as in the preceding cases‡

Fully formed collapse.—Glaskin, aged 42—a waiter from Nibloe's Coffee House, was seized this morning at 5 a. m. with vomiting and purging; was brought to the hospital at 8 a. m. then complaining much of cramps in the legs, abdomen and back. At 9 the pulse was feeble, the skin cold, soft and reddened, and there was tinnitus aurium. 2 p. m. sinking—4 p. m. died. *Treatment* the same as the others, together with cupping over the epigastrium, and the application of sinapisms to the same part.

Advanced Collapse.—Anne Duffin, aged 60 was seized yesterday with vomiting, purging and cramps; the symptoms at 10 a. m. this morning were, countenance sunken, tongue cold, white and reddened, skin cold, pulse small, cramps. 6 p. m. Extreme collapse; lies unconscious of every surrounding object, without moving, and cannot be roused—the breathing apnoeic.

Far Advanced Collapse.—Mary Barron, aged 35, admitted this morning. At 8 a. m. the voice was so weak that she could not be understood, and when with difficulty roused, she declared so exhausted that I could not persist in seeking her.

Next day the circulation and heat were natural, but the voice continued weak, and there was frequent watery purging with soreness of the epigastrium. No urine was voided before the following day, when the only complaint was debility.

On the 26th Brown had no complaint, and on the 27th he was sent to the convalescent hospital.

† Died at 9 p. m.

‡ Died at 10. 30 p. m.

to give some account of her case. Collapse was even then nearly extreme. 6 P. M. Sinking, hands and fingers shrivelled and blue, lies quite unconscious of all surrounding objects. Treatment as in the preceding cases.

Extreme Collapse.—Prince, a negro boy aged 8 years, was seized yesterday evening with purging, vomiting, and cramps, and was admitted this morning at 8 A. M. Symptoms: skin cold—no pulse, except in the carotids—respirations about 16 in the minute, tongue cold and soft, voice hardly perceptible, eyes half shut—perfect indifference to every thing around, (a female relation is sitting by him,) yet answers after much rousing very intelligibly “no better.” No urine passed, no dejections or cramps. This is the nearest approach to animated death that I can conceive. He asks for nothing, never moves, yet the intellect is intact.

26th August. From yesterday morning until 7 A. M. this morning, I found the deaths to be seven, including five of those received yesterday, in the different stages of collapse.

There are now three cases of consecutive fever (so called) amongst the women, and one man died of this the day before yesterday. All of these cases I note, as it seems a most formidable part of the malady, making less impression than the state of collapse only because less rapidly fatal. Though resembling typhus, there are such strong shades of difference, as to be obvious even to my short experience. There are in it the dry and brown tongue, an *assoupissement*, resembling the soporose or comatose state of typhus; but there is not the ardent heat or delirium of this disease; indeed the heat hardly reaches in the very centre the natural temperature, and in the extremities and other parts it is below this, or if a genial warmth does universally diffuse itself, it is accompanied by such signs of amelioration as give the best hopes of recovery; and however seemingly abstracted the patient be from all surrounding objects, if duly roused, we are answered clearly and intelligibly “not very well” or “no better.” In this respect, as well as in the circumstance of diminished heat, it differs also from apoplexy, which otherwise it simulates; and cupping and bleeding, so much used, do not seem calculated to excite the energies of this torpid subvital animal machine.

The distinctive features of this state, are apparently as obvious and uniform as are those of the stage of collapse which precedes it.

Anne Robinson, a fine looking woman, aged 22, was admitted on the 22d August, in incipient, but advancing and fast forming collapse; on the 23d, when I saw her, she was pronounced to be out of danger from the symptoms of this stage; on the 24th, however, there was incipient stupor or somnolency, threatening congestion. She had a cathartic, and she was bled, and next day was considered better. This morning,

• Died at 10. 46 P. M.

† Died at 1 P. M.

however, she lay in a state in appearance entirely apoplectic, her full and florid face being lengthened, and the lower jaw even a little hanging, with a protracted moan, approaching to stertor, the eyelids half closed; but the pupils were contracted, and she was excited to a degree of attention with tolerable facility, indeed at times she roused of herself, generally rubbing one of her arms with her hand. The pulse was 88, of moderate strength, the skin, even to the præcordia, cool or rather cold—the tongue furred and brown. Sixteen ounces of blood were taken from the temporal artery, and she was cupped on the back of the neck. She had also a warm foot bath, in which a quantity of cayenne pepper was infused.*

The following case is also a good instance of this disease, and shows very well its mode and period of invasion, as well as its usual course. Mary Healy, aged 28, after two days diarrhoea, was seized on the morning of the 22d August with vomiting and cramps. The latter were very distressing when admitted at 2 p. m. and there were rice-water dejections, the pulse could hardly be perceived, and the tongue was choleric—(character already defined). She was bled, the frictions were used; enemata of starch and laudanum were administered after the dejections, a sinapism was applied to the præcordia, and a scruple of calomel and two grains of opium were taken, giving her from time to time small quantities of a mixture of Tr. of Gentian, Capsicum and Cinchona, with sulphate of quinine, in brandy and water. She was also cupped on the epigastrium. On the 23rd and 24th, she seemed to me convalescent; but on 25th a soporose tendency indicated incipient congestion, and this symptom is increased to-day. She had a scruple of calomel, and was bled to 16 ounces.†

These two cases, (Robinson and Healy) are the congestion or apoplectic congestion, rather than the consecutive fever that succeeds to the collapse of cholera, or constitutes a part or stage of this malignant disease. The two following cases illustrate the character of the fever, or attempt at fever that is consecutive to the collapse.

*The tongue remained the same, but the pulse became weaker, yet she continued perfectly sensible on being roused, until a little time before she died, at 5 p. m. the following day.

†On the 27th, the mouth was a little sore, she was more awake. I pronounced her better—the tongue still continued brown and furred; the pulse was strong. On the 28th, she was again soporose, though without difficulty roused to return distinct and appropriate answers; the extremities were cold, and even the temperature of the body was below natural;—the tongue was furred, dry and brown, and a livid blue circle surrounded the eyes: there was pain in the epigastrium—(cupped). On the 29th, the skin was generally of a natural warmth, the eyes remaining lustreless. On the 30th, I left her better, a genial warmth diffused over the whole body and extremities, the pulse 80, of good strength; the tongue moist and less furred—yet she was still oppressed by great languor.

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Mary Reilly, aged 30, after suffering a day from diarrhoea, violent vomiting, and severe cramp, with tinnitus aurium, was admitted on the 22d August, with a distinct, but feeble pulse, a choleric tongue, cold skin and sunken eyes—incipient collapse—(Calomel. scrup. i. Opil. gr. ij.—Frictions.) On the 23d, the distressing, greenish, bilious vomiting continued—(cupped on the epigastrium.) On the 24th, the vomiting was less, but the tongue was dry, brown and furred, and there was an evident soporose tendency—(Calomel grs. v. every four hours.) Yesterday and to-day (26th) the symptoms have continued nearly as on the 24th, the stupor not increased.*

In the other case, premonitory diarrhoea had continued longer, (a week) the collapse was farther advanced on admission, and all the symptoms assumed a higher character. [I anticipate the regular order of my diary, for the sake of placing these cases together.] Watering, aged 22, was admitted at 9½ A.M. on the 27th, having become worse the preceding day, with increased purging and vomiting, and in the night with cramps and pain in the epigastrium. A scruple of calomel had been administered to him at his own house. On admission, the pulse was just perceptible, the skin cold, the tongue cold, furred and moist, (choleric) the countenance sunken, and becoming livid, the conjunctiva injected—(collapse formed)—the dejections were rice-water (as defined.) Frictions, and starch and laudanum enemata. At 7 P.M. the pulse was quick, and the skin warm, the collapse seemed overcome, though the fingers still continued shrivelled, (calomel five grains every four hours). On the 28th, in the morning, I found him lying quiet, but soon perceived there was incipient sopor; he asked, however, in a very feeble voice, if there was any danger. The eyes were much injected, the tongue was furred and yellow, the pulse 114, very small, respiration natural, and the skin generally sufficiently warm—(cupped in the temples—ordered a laxative.) On the 29th, the prostration and accompanying symptoms, were nearly as on the preceding day—(a grain of calomel, with three of Dover's powder every hour). On the morning of the 30th, his appearance was rather better, he answered clearly, but soon relapsed into his somnolent state, though it had certainly more the appearance of natural sleep than before. The skin was warm below as the knees, the tongue was moist, and less furred, the pulse 90, and soft; yet on leaving him in the afternoon, I could hardly indulge any hope of his recovery. He had been cupped and bled to the utmost possible extent. Atkinson's case, shortly alluded to at page 16, was marked, as far as I saw it, by symptoms almost the same as in this case of Watering. It terminated fatally.

*On the 27th she was more animated; the mouth was a little sore, tongue yellow and furred, the pulse soft and skin of natural warmth; still vomiting—(bled to 16 ounces)—in the night she became feverish, and on the morning of the 28th I found her decidedly better, with the aspect of a patient having bilious fever. On the 30th I left her fully convalescent, the mouth sore.

On my return to the Hospital in the evening, I found that three patients had been admitted—a woman, and two men. In all the circulation is good; they have, however, each had purging, vomiting and cramps, or at least two of these, that is the symptoms that threaten, or are premonitory, as immediate precursors of incipient collapse.

Though Doctor Rhinelanders tells me, that conjointly with these, only the symptoms of common cholera, a peculiar clammy or sily feeling imparted by the patient's skin, enables him to pronounce the disease to be malignant cholera, I have not yet acquired the tact to discover in the purging and vomiting any thing by which I could positively determine the disease, more than I could pronounce from the pyrexia that precedes the eruption of variola, that the disease was small-pox, however much I might suspect from the prevalence of this disease, and the patient not having had it, that it would prove to be variola. The vomiting and fits that frequently occur in the invasive fever of small-pox, would strengthen my suspicion, as would the concomitance of cramps with purging and vomiting in cholera; but as the peculiar eruption only would be conclusive in the one, so I could only be satisfied of the other by the failing, or incipient failing of the circulation, the sinking of the animal heat, the change of colour in the skin, to brown or dusky, the sinking of the eyes—the shrivelling of the fingers or toes—the choleric tongue—choleric vomiting or dejections—choleric voice, (all already defined in the cases of incipient and forming collapse-related) the pain or oppression at the præcordia. Even one of these, so diagnostic symptoms, but especially the combination of two, three or more, would, I feel confident, be conclusive; indeed it is remarkable how convincing these symptoms are, and that even while only in the act of developing themselves, conjointly with a countenance which indicates the *tout ensemble* of the disease.

The treatment of the disease, in the stage at which the three patients above noticed were brought in, at Crosby street hospital, is by calomel and opium, conjoining sinapisms to the præcordia, and frictions, as indicated. Dr. Roe's treatment, I have already mentioned in the account of Greenwich hospital, also Dr. Tappen's at the Park Hospital.*

August 27.—At 6 30, this morning, I found that only two patients had been received after I left last night. One of these (a man) has only feculent diarrhoea, with a countenance indicative of a past debauch. His pulse is good, and his skin is warm. The other is a female, who has been for sixteen months a servant in the house of a gentleman. She

*The treatment at this period is the same at Corker's Hook hospital as at Crosby street, with the more assiduous application of external heat. It is indeed easily treated, but requires most narrow watching, that it may not unperceived run into collapse, as in some instances I have seen it do, when I did not the least expect it.

had had more or less diarrhoea for two days, and on mentioning this she was desired to go to the hospital. Not being able to find it, she went to the house of an acquaintance, who, however, on learning what her complaint was, sent her to the watch-house. She appears exhausted, but the circulation is good, and there are no urgent symptoms. I note such seemingly trifling particulars of these two cases, to show, as in the case of the man, (because one of frequent occurrence at all the hospitals since I have been in New York) that many patients are sent into cholera hospitals, who either have not the disease at all, or, as in the woman, of a mild nature, and also to show the uncharitable influence of the belief of contagion, as sanctioning the selfish in the neglect of their suffering fellow creatures.

At 9, 15—Watering, whom I have mentioned at page 17, as an illustration of consecutive fever, was admitted. It will be seen by the symptoms, that this was also a well marked case of fairly formed collapse. About the same time, Janet Donaldson, aged 25, who had lost her father in cholera, was brought in, in the state of incipient collapse, after introductory diarrhoea for some time. In this case, whilst the countenance was sunken, and the pulse imperceptible, the skin was yet warm, and the tongue not choleric, (*Calomel and opium.*) In the course of the afternoon she became cold and rigid, but, this being observed, the heat was restored by frictions.*

An unmarried sister of Donaldson, (Margaret Ingles, aged 22) who, though labouring under diarrhoea and the effects of a strong cathartic (injudiciously given) when she accompanied Mrs. Donaldson to the hospital, in the morning, would not be advised to remain in the house, though told the danger of neglecting her complaint, however little she might think of it. As had been predicted, she was brought in at 11 P. M. in a state of fully formed collapse, having been bled at home shortly before. The dejections, pulse, skin and tongue, were characteristically choleric, though the countenance was natural. (*Calomel and opium—Frictions—opiate enemata.*) She had suffered much from cramps before admission.†

August 28. —At 8 A. M. Baker, aged 83, having been purged and had cramps since yesterday evening, without any vomiting, was admitted in perfectly formed collapse, all the di-

*Though the heat in this woman continued below the healthy standard, on the 28th she was obviously greatly better, and next day she was fully convalescent, without any reason to apprehend consecutive congestion or fever.

†Next morning, Ingles lay with the eyelids partly closed, every part of the body cold, except the epigastrium, the pulse perceptible only in the carotids, where it was strong. About noon the collapse became extreme, she lay without asking for drink, and with very little jactitation. By diligent rubbing, however, and bricks, the heat was restored, and hopes of her recovery were entertained. At 10, 30—she was discovered to be dead, the nurse having been with her only a few minutes before.

agnostic symptoms being strongly marked—pulse very feeble and indistinct, tongue cold, furred and brown, skin cold, hands and fingers shrivelled and blue, face dusky, eyes sunken, voice entirely gone: he died at 5 P. M. under the usual treatment.

August 29—To-day five have been admitted in collapse, three fully formed, one far advanced, and one extreme. To enumerate the symptoms of the man, aged 26, (Jones) who was received at half-past 1 P. M. in extreme collapse, and died at 3 would be to repeat those of the boy Prince at page 15, and the state of many others as the disease gained ground, when I have marked the symptoms extreme collapse.* And very near does this extreme (moribund, but without that labour of the respiratory organs, apparent agony or pain that in other diseases attend this state) stage follow and resemble that of far advanced collapse.—The case of Peter, aged 88, who was received to-day at half-past one, and died at six, might be stated in almost the precise words of Mary Barsons at page 14. In Peter there was no pulse, the tongue was ice-cold, the face was purple; but there were thirst and constant jactitation almost to the close.—Of the three fully formed, one had had introductory diarrhœa for a day, one for several days, and the other for a week—one was admitted at 8 A.M. and died at 10 P.M.—one at 4 P.M. and died at 9—and the third at 6 P. M. and died at 11.—In the three, the pulse I have noted, a perceptible thread, hardly perceptible, and none, (for the apparent strength of the patient is not estimable by the pulse;) he who had only a perceptible thread, lamented bitterly the loss of his boy the day before, a circumstance very uncommon. In all the skin was cold—in all the voice was low, but in one barely audible—the tongue cold—the face dusky, purplish or livid—the eyes sunken, with a bluish circle in one, a female—countenance anxious in one, expressive of pain in another, and without any marked expression in the third—the fingers were shrivelled in all—the nails in the woman retained their natural colour, in one man they were purple, and in the other blue. Such are the varieties in the symptoms, as they present even in the same stages of the disease.

One of these cases I must notice more particularly, as Doctor Rhinelandt judged it a fit one for the employment of the venous injection. His case (Campbell, belonging to the Caledonia, a collier) is sufficiently embraced under the general symptoms of these three cases, as I have given them, until 3 P. M. (he was admitted at 8 A. M.)—3 P. M. greatly sunk; every appearance so much worse, that it seems doubtful whether he will survive to the time fixed for the injection.

6 P. M. Face covered with cold perspiration, hands and fingers shrivelled, nails blue, respirations 18—pulse not

*An opportunity was kindly afforded me of making the autopsical examination of this man.

positively to be distinguished even in the carotids, lies unconscious of all external surrounding things, not apparently feeling in the least the incision made by Dr. Rhinelander over the median cephalic vein, of an inch in length, the dissection of the integuments from the vein, or the aperture of half an inch made by a lancet in the vein itself. (The most marked and extreme collapse). The assistants having prepared the usual solution of carbonate and muriate of soda in water, at the temperature of 112 degrees,* Doctor Rhinelander's apparatus, described at page 11, was filled with it, whilst the assistant continued to pour the warm fluid gently from a jug into the funnel, as was requisite from its passing through the opened cock into the vein, the ivory pipe being dexterously introduced after a few ounces of blood had pretty freely flowed from the puncture, and the stream of warm injection had washed away the blood from the wound, so that the opening in the vein was distinctly visible. (The effused blood was cold and black, and the vein when laid bare seemed distended and full of blood.) In about a minute, the pulse was perceptible in the carotids, in two at the wrist, and in four it distinctly beat 96. After seven minutes, the neck became warm, then successively the loins, back, thighs, forehead and legs. He now awoke from his torpor, looked comparatively animated, the eyes having acquired some lustre, and the cheeks and lips changed their dusky brown for a somewhat ruddy hue, he answered "O! yes, I am better, give me some drink."

These effects were produced when about twenty ounces had been injected, and it was not continued longer. During the operation of injection about eight ounces of blood had flown and dropped into the basin, placed underneath to receive it. A degree of heat subsequently extended to every part, though the feet and hands were still below the genial warmth of health. Bottles of warm water were placed at the soles of the feet.†

7 P. M. The pulse and other symptoms, of at least temporary improvement, noted after the injection, continue as then.

8 P. M. The pulse again much sunk, though the heat and restored sensibility to external objects, are yet little diminished. 10 P. M. just dead.‡

* A dram of muriate of Soda and ten grains of the carbonate to three pints of water.

† I could not help thinking that all the resuscitating effects here noted, were produced, not by the soda dissolved in the water, but by the heat communicated by this fluid to the body, which if aided by the assiduous and extended application of external warmth, and the injection itself repeated as often as necessary, I should hope to witness more frequently happy effects in these so hopeless cases.

‡ Of this man also, Dr. Rhinelander kindly permitted me to make a post mortem examination, only requesting a copy of the case and appearances.

August 30. — At 9 A. M. Prince, a negro, aged 27, was admitted in incipient and fast forming collapse, which at 1 P. M. was fully formed, notwithstanding the employment of the usual treatment. On admission, it was a very little farther advanced than the case mentioned at page 22 and it seemed to me that bleeding promised as fairly to relieve the cramps and pain at the epigastrium as it had done in that case; it was not however ordered. The first symptoms had only manifested themselves at 4 A. M. pain at the epigastrium, succeeded by watery purging. He was intemperate. The mother of this man came with him. She stated to me that she had been a nurse in Crosby Street Hospital six weeks since, but had quitted on account of ill health, that she had not been near the hospital for a month. She, however, lived with her son in a house, in Lawrence street, where several people had died of cholera. She took possession of this house twenty two days since, after it had been white-washed and thoroughly cleaned. In this and the other cases of cholera that I have seen in negroes, I have remarked how much the expression of countenance depends upon colour, and consequently the entire want of this distinguishing symptom, so indicative of the disease, in the black: there are, however, sufficient symptoms, without this, to decide the disease.

About noon another case of collapse (this stage fully formed) was brought in. He was a tall, fine looking man, aged about 38. His wife sat by his side, weeping and lamenting that he was surely going; but of this he was wholly regardless, or unconscious. His face and whole body were covered with large drops of perspiration (the only case in which I have seen the body thus universally bathed in cold perspiration,) the eyes sunken, face bluish, hands shrivelled, in short with all the symptoms of a collapse rather far advanced, than only completely formed, and without a chance of recovery.

Although so many patients had died at the Crosby street hospital during my attendance there, and notwithstanding every disposition on the part of the physicians to give me an opportunity of knowing the appearances found on dissection in cholera, it so happened from their friends claiming the bodies, and from a strong prejudice against such examinations, that until this my last day at New York no case was furnished. To-day, assisted by Doctors Sawers and Gale, I examined the two men, as mentioned in the notes at page 21 and 22.

Autopsical examination, 14 hours after death, of Campbell, with whom the venous system had been used (See page 20). — External Appearance. — Face purplish and livid — the whole surface the same. The face, together with ruddy patches, occasioned I think by the episcium frictions. Here is a cadaverous aspect; but it is the peculiar one of cholera. The limbs are stiff, straightened and inflexible — countenance placid, serotum as black as sphacelus. — No effusion of blood

on cutting through the integuments and muscles of any part.

Head.—The dura mater adhered so firmly to the parietal bones that they were difficultly separated without lacerating the brain. At three or four parts, near the superior longitudinal sinus, patches of coagulable lymph were thrown out. On the surface of the brain there was just an appearance of serous effusion. The veins terminating in the superior longitudinal sinus, and the sinus itself, were filled, but not particularly distended with dark venous coloured blood. The substance of the cerebrum was firm, presenting on being sliced no dotted vascularity. The left lateral ventricle contained about four, the right three drachms of serum; the plexus choroides was granular, brownish, not an injected net work. In the basis cranii there was about half an ounce of serous fluid. The sight and touch could detect nothing abnormal in the cerebral nerves.

Chest.—The pleuræ costalis and pulmonalis were firmly united on both sides, by old adhesions. The lungs were engorged, and dark as in pneumonia, in both sides, and in volume what they are generally found to be in that state.

Heart.—Of duly proportioned size; but flabby, empty; the sides of the cavities collapsed on each other, and the whole appearance conveying an idea of powerlessness. Amongst the columnæ carnea of each ventricle, there was a very small fibrinous coagulum, and from all the large vessels that opened dependently into the cavities, there was an oozing of very black thin blood. All the large vessels contained black coagula.

Abdomen.—Before being opened this cavity was tense and rather tympanitic, and on the parietes being divided, this tension was found to arise from the inflation of the large intestines with foetid gas. The stomach contracted, contained about eight ounces of a greenish, turbid fluid, with considerable sediment, in which there were three large unbroken pieces, and partly unpeeled, with many smaller bits of water-melon. The inner surface of the stomach was tinged of the same colour as its fluid contents, and on sponging this off the mucous coat presented in its aspect nothing remarkable, except that in color it might be a little darker than usual. Whilst the peritoneal coat of the large intestines was generally markedly vascular, and some inches of the descending colon, just above the sigmoid flexure, dark, approaching to black, though still firm, the external coat of the small intestines presented nothing remarkable, either in colour or vascularity. These contained through their whole extent, from the commencement of the duodenum, a large quantity, certainly quarts, of a dirty turbid fluid, like thick barley water, and in other parts resembling a mixture of oatmeal and water, brownish. Their internal coat was tinged by the contained fluid. The large intestines contained none of this, nor of any free fluid, and neither in them nor in any other part, was there any feculent matter, or even the smell of any. The

inner coat of the large intestines was coated with a very tenacious, brownish mucous. The peritoneum and mesentery were of the same colour as the small intestines, and without marked congestion of the vessels. After handling these parts and tracing the course of the small intestines, my hands were covered with a glutinous, colourless mucous, and however well the hands were washed the least touch of these parts again coated them.

Liver.—A little marbled, firm, not containing much blood. *Gall-Bladder*, large, fully distended with an olive-coloured thin bile. *Spleen*, firm and small. *Kidneys*, firm, of ordinary size—the secretory cavities rather pale, than vascular; from these cavities Dr. Sawers thought he could press out an oily fluid. *Urinary Bladder*, moderately developed, containing about four ounces of pellucid brown coloured urine. On the surface of the blood, in whatever cavity effused, there floated small globules, which to us seemed oily.

Having detailed at this length the appearances in Campbell's case, in that of Jones (see page 20) it will be sufficient to state wherein it differed from this, and what were in it also the appearances judged to be peculiar to cholera.

Being a negro, nothing can be said of the colour of the surface. The substance of the cerebrum is softer, and there is not a particle of fluid in the ventricles, though there are about three drachms in the basis cerebri. In the thorax there are adhesions, old, firm and continuous, the lungs are more easily lacerable, and there issues from them abundantly fluid dark blood. The heart, presenting the same flabby, empty, collapsed powerless appearance, does not contain in all its cavities more than an ounce of fluid dark blood. There is a very small dark coagulum in the left auricle, and another in the aorta. *Abdomen*, not at all tympanitic. In full contrast with the first case, the small intestines are minutely injected, whilst in the large there is hardly a vessel visible. The same tenacious viscid mucous, and even in greater abundance, adheres to the hands employed in the peritoneal cavity and in tracing the intestines. The rather contracted stomach, contains several ounces of a thin, rather turbid fluid, without much sediment, and without any undigested matter. The inner coat pale, with a viscid mucous coating, coloured, as the fluid contents, brownish. On rubbing this off, a few scattered reddish spots present. The small intestines, through their whole extent, are almost filled with a fluid resembling the contents of the stomach at the duodenum, becoming thicker as it descends, until it fully resembles that in Campbell's. In some places there are shreddy mucous fibres, and a quantity of lateritious or brownish sediment. The mucous coat is cream colored, without a vessel, and the valvulae conniventes are prominent, but not softened. The large intestines, without fluid or feculent contents, but lined, as in the first case, by viscid mucous. *Urinary Bladder* different from Campbell's case,

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contracted, thickened, and hardly containing an ounce of a brownish sedimentitious matter, resembling the contents of the lower parts of the small intestines. Liver, soft, easily lacerable and filled with blood. Gall-bladder, half filled with very light coloured bile; gall-ducts pervious, the cystic containing two small gall-stones. Spleen soft and easily lacerated. Still larger globules of oil seem to us (first pointed out by Dr. Sawers), to float on the surface of the blood wherever effused.

Here it seems to me, that the peculiar post mortem appearances in these two cases, are only the flaccid collapsed and powerless state of the heart, with the less marked peculiar character of the blood, the sily mucous coating of the peritoneum, and the choleric contents of the intestines.*

I now take my leave of Crosby-street hospital, to which I feel myself so much indebted, and which I gratefully acknowledge. It has been my head-quarters, and that not only because the disease, during my stay at New York, seemed to concentrate there, but also because I felt invited thither by the kindness and liberality, indeed by the hospitality with which I was received, for whenever the interest of cases, or economy of time, demanded my prolonged stay at the hospital, I was a welcome guest at the table of the resident physicians, of which I more than once availed myself. In fact, I was admitted to be there when I pleased, and to do what I pleased, having my objects always forwarded by every requisite assistance.

DOCTOR DE KAY'S CASES, &c.

August 24. I have had to-day some hours conversation with Doctor De Kay.† He says it is ascertained, that the first case of malignant cholera at New York, was in an emigrant from Canada. Regarding contagion, his expression is, that it is a point about which he is indifferent, but that he would be very sorry to have the belief of its contagious nature prevail, after having witnessed the neglect and inhumanity consequent on this belief in plague. Entertaining these sentiments, he left to Dr. Rhinelander the part of their Canadian Report in which the question of contagion is considered. It is certainly rare, he says, that only one case occurs in the same family. A sailor has lately been taken to Crosby-street hospital, who lost three of his ship-mates from the same boarding-house.

* Having, for the sake of more recent comparison, since examined the contents and inner coat of the intestines, in a subject dead of Phthisis, and observed therein the profusion of bile, deeply colouring all the fluid contents and mucous coat, I feel that I should certainly have marked the total absence of this as a peculiarity in malignant cholera.

† Doctor De Kay saw cholera when it first prevailed so extensively at Constantinople and Smyrna; he was a joint commissioner with Dr. Rhinelander, from the City Councils of New York and Albany, sent to visit Quebec and Montreal, when the disease was so fatally ravaging these towns, and he has had the joint charge of a cholera hospital since the disease commenced at New York.

The same indifference as expressed by Dr. De Kay, on the question of contagion, I find pervades generally all the faculty with whom I have yet conversed—so much is this the case, that it is rare to find the circumstance of its being a first, second, or third case from the same family or house noted on the case-books.

Old people and children, the Doctor says, are by far the worst cases. Except in such subjects, or those of very broken constitutions, he has not of two hundred cases, in private practice, lost any, using generally, in the premonitory or precursory symptoms, camphorated spirit with oil of peppermint and tincture of opium, and, if more severe, bleeding. In collapse, bleeding, wherever blood can be obtained, using stimulants, particularly large doses of laudanum, even as much as two or three hundred drops, with sulphuric ether, and employing the capsicum, camphor and muriatic acid ointment frictions, succeeded by rubbing with warm chalk. He confirms the statement already made of the great benefit derived from bleeding in the Crosby-street hospital, though it certainly seemed detrimental when used in cases of extreme prostration. The venous injection he has seen in, (I think he said,) forty cases, in four it was very beneficial, though two afterwards sank, from insufficient attention to them. It immediately raises the pulse, and restores the colour to the face and surface, but these effects are only temporary.

August 26.—10 p. m. I have just returned from visiting with Dr. De Kay two private patients, in a house adjoining another where there lately occurred a case of cholera. The patients to whom we paid our visit, are the mother and son. The son has been some days convalescent from an attack that did not proceed farther than approaching collapse, and seeing how he had been treated by the Doctor, the relations supposed they could manage the mother's case themselves. After diarrhœa for some days, the severe symptoms came on this morning, but collapse was completely formed before she was seen. Some hours before our visit she had had 200 drops of laudanum. We found her with the colour nearly natural, and the body sufficiently warm, but the extremities cold, the pulse hardly perceptible, respiration slow, lying with her mouth open, in an apoplectic insensibility, from which she could not be roused, the head and face cold, whilst the epigastrium was preternaturally warm. The latter, Dr. De Kay says, is a remarkable symptom, in as much as the temperature of the part actually rises after death. Part of the symptoms I saw in this woman, looked very much like the effects of an over-dose of laudanum.

From our conversation, I have learnt that no preparations had been made for cholera when it appeared in New York, that the greatest confusion and embarrassment was the consequence, there being the utmost difficulty in obtaining nurses and attendants of good character. No means have been adopted to isolate infected houses or districts, and no further purifications have been used than as far as individuals chose. The streets were cleaned, and nuisances removed by the city authorities. At a

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more advanced period of the epidemic, a physician, with from two to four assistants, was appointed to each ward, to watch the premonitory symptoms, or introductory diarrhœa, and thus arrest the spread of the malady; as well as to treat actual cases of cholera, or to send them when necessary to the hospitals. This preventive system, has been adopted as generally as it can well be done, and it is considered the only means on which there can be placed any confident reliance for stopping the spread and fatality of cholera. It has been acted on rigidly at Bellevue, at Sing Sing, &c. and I witnessed Dr. Roe performing this duty amongst a body of five or six hundred labourers, who are employed by the corporation making a road, and with, he told me, the most satisfactory success.

SELECT MEDICAL COUNCIL.

August 24. To day I waited on the Select Medical Council, introduced to the President, Doctor Stevens, by a letter from the Mayor. I conversed more than an hour with the Secretary, Dr. Morton, and two of the members. They seem disposed to admit the personal communicability of the disease, as the evidence of this, from its undeniable (as notorious) general spread from person to person in the same family, house, and quarter, is irresistible, whatever immunity physicians and others, who are in constant intercourse with the sick, but who are attentive to introductory and premonitory symptoms, may generally enjoy. The members of the medical council, derive their knowledge of the disease not only as individual practitioners, but also as inspectors of the hospitals, from which they likewise receive daily reports, with remarks, and answers to whatever questions they propose, so that their statements only require faithfulness in reporting and judgement in selecting. Doctor Stevens, tells me that ten days is the longest time he has known before the disease developed itself, after the exposed person had removed from New York to a healthy village in the country*. The Secretary, says the general time he has known or learned, is from 24 to 48 hours.

August 27.—Having had much conversation to day with Dr Stevens, he gave me leave to submit, in writing, questions on all the points about which I needed or wished further information, to the Select Medical Council. Copies of these, and of the answers returned to them, I append to this diary.

The Doctor has also been kind enough to say he will forward to me a copy of public documents, shortly to be published by the council, in which fuller information will be found than they are yet prepared to furnish on every point.

*The Mayor of Boston told me that in one instance, which came to the knowledge of the Board of Health, seven days had elapsed before a person who had left a ship where Cholera had proved fatal, was seized with the disease, and in another nine, so that they fix ten days as the period of quarantine.

CORLAR'S HOOK HOSPITAL.

August 25th.—This afternoon I visited the cholera hospital at Corlar's Hook. This is a temporary shed, first opened on the 18th July, in the vicinity of Walnut Street, (a barrack or point street of New York.) There were twenty four patients, none of them in collapse, so that Dr. Graham said he had nothing to show me characteristic of the disease. A few were slighter cases of cholera from the commencement, and three were consecutive fever, in one of these, a child, the symptoms were almost identical with those of hydrocephalus, the form the consecutive disease generally assumes in children, the Doctor says, and mostly fatal.*

Camphorated mercurial and capsicum ointment † frictions, with external warmth, and cupping and bleeding, if the pulse admits the latter, (without any internal stimulants) constitute the treatment in collapse, or forming collapse. In this way ptyalism is often excited. Three of the patients now have sore mouths from it. In one of these, a young woman whom he shewed me, the collapse was extreme, the case indeed hopeless, but ptyalism commenced after eight hours, and she is doing well. Calomel was also given internally, in three or four grain doses. A great advantage of this treatment, Dr. Graham says, is that consecutive fever is of less frequent occurrence, and when it does supervene, is more tractable. He thinks the continuance of the consecutive fever is in the direct ratio of the length of the stage of collapse.

In this hospital, from the 18th July to the 25th of August, there were,

Admissions	216
Recoveries.	121
Deaths	76
Of 105 admitted in July, there were in collapse	64
With diarrhœa, vomiting and cramps	38

August 27th. On visiting this hospital to day, I noted two cases, the one incipient, and the other approaching collapse, *i. e.* they were both so well marked, that, with very little failure of the circulation or sinking of the heat, there being purging, vomiting and cramps, after introductory diarrhœa, there could be no doubt, if neglected a very short time, collapse would have been distinctly formed in both.*

August 29th.—A man admitted last night, in advanced collapse, survived only a few hours.

* This child died in two days.

† At Greenwich hospital, the ointment is composed of a pound of mercurial ointment to seven ounces of camphor and seven ounces of cayenne pepper. At Corlar's Hook about half the quantity of camphor and pepper to the pound of mercurial ointment.

* 29th August.—Though mercurial frictions were used, and calomel was given in both these cases, the worst, an intemperate man, has an appearance of incipient congestive sopor.

BROOKLIN HOSPITAL.

August 27.—To-day I passed over from Corlar's Hook to visit the cholera hospital established at Brooklin. This is a large, well ventilated building, situated, however, nearly two miles from the centre of the town. There have been received in all 130 cases, and 60 deaths have taken place. After the disease had continued for some time, four physicians were appointed to the districts into which the town of Brooklin was divided, to attend the poor at their houses, and to watch the premonitory symptoms, (as at New York), and subsequently to this most of the cases received were in collapse, and consequently the greater part of them died. No well marked cases have been received for some days, and there are not more than a dozen patients in the hospital. Of these, two are consecutive fever—they are likely to do well. Amongst the patients, are four in whom the venous injection was used. I saw the arms of all of them; two had no recollection of the injection having been used, being they said, quite unconscious at the time of its being done. Three of these are quite well, the fourth is one of the cases of consecutive fever. The injection was fully successful also in two others, who have left the hospital; but in several it failed, and at least one accident, with regard to the introduction of air, happened, which, though not immediately fatal, proved so in a short time, that is, it hastened death a little.

On mentioning this number (six) of successful cases by injection at Brooklin to one of my New York medical friends, he seemed a little incredulous; at any rate he thought the cases could not have been in advanced collapse. The physician, however, with whom I conversed at Brooklin hospital, and who had injected them, assured me they were. He also told me that the quantity of injection used was very great, but to obviate the congestion that seemed to be produced by this, he almost always had a vein or the temporal artery opened at the time of injecting. In the general treatment of cholera, as described to me, there is nothing worthy of noting—nothing energetic.

RIVINGTON-STREET HOSPITAL.

August 28th.—To-day I visited this establishment. It is a fine, spacious public building (a school house.) At present cholera patients are not received, as it is intended to shut it up. Here the camphor-water has been found even more efficacious than ice for stopping vomiting, but otherwise it availed little. In the incipient stage, where there appeared to be colluvies gastric, it was not an uncommon practice to give an emetic of Ipecacuanha or of common salt. In collapse, bleeding was abandoned after trial; the camphorated mercurial and capsicum frictions, with the internal use of calomel in x or xx grain doses, becoming the settled practice, as being found to be most depended on. When opium was conjoined with the calomel, it

was found to aggravate the subsequent congestive stage.† The attempt to heat the body by the spirit lamp, with tubes, did not succeed. In congestion, vesicatories and cupping had become the settled practice, as proved by experience best.

A very few cases occurred without premonitory symptoms; and a few also terminated fatally, notwithstanding the promptest treatment from an early period. Dr. Rice (whom I to day met at this hospital) remembered one. This man went to the hospital at night to request assistance to bury his wife, who had died of cholera. Being late, he was allowed to occupy a vacant bed for the night. Dr. Rice had occasion to pass him several times, on one of which he observed that he seemed to be suffering. Being questioned, he complained of severe pain at the præcordia. Notwithstanding the promptest assistance, he sunk before the morning. This reminds me of another case, mentioned to me before by one of the assistant physicians of Crosby-street hospital, in which the man declared, that four hours before his admission, in collapse, he was walking the streets quite well and "hearty." Such cases in New York, however, are mentioned as something very rare, and they are even with difficulty credited, so universally have there been premonitory symptoms.

The Medical attendants, nurses, &c. have suffered less at Rivington-street hospital, than at any of the others I have yet visited. Here also it was very common to receive more than one patient from the same family or house.

YORKVILLE CHOLERA HOSPITAL.

August 27th.—To day, accompanied by Dr. Stevens, I visited this country hospital. I found there only a few convalescents from cholera, none even with consecutive fever; indeed there had been no admissions for some days, and it was consequently determined to shut it up. There had been one hundred and forty cases, and of these half had died. For further particulars of this hospital, I must wait for the forthcoming papers of the Medical Council. A fact mentioned by the senior physician of the hospital, shows strikingly the effects of the belief of contagion in the neglect and abandonment even of relations, from the apprehension of personal danger. This hospital was prepared for the reception of cholera patients from a numerous population of labouring poor in the neighbourhood. The physician was one night disturbed by the noise, as he supposed, of a cart; he went to the door, saw no cart, but found two patients on the ground in extreme collapse.

CONVALESCENT HOSPITAL.

August 27th.—I visited this hospital to-day, not expecting to see cases of cholera, but to acquaint myself with the condition of

† With one or two exceptions, all the hospital physicians concurred in this opinion, and had abandoned the use of opium in large doses.

those who have got over the actual disease. This is a fine building, in Orange street, being a Lying in Asylum, converted on the late emergency to its present purpose. The patients are sent here from all the cholera hospitals, as soon as the symptoms of the disease are subdued, indeed sometimes, I find, before they can safely be removed, so much so that the physician told me two or three (I think he said four or five) died shortly after being received. In one cholera hospital, there is a belief that if the patients are retained there they contract consecutive fever. There have been two hundred and thirty-seven admissions into the convalescent hospital, and fourteen deaths to this date. At present there are sixty in the house. One patient died of phthisis, nearly all the others of congestion or consecutive fever, and that, as far as the physician's memory enabled him to say, after their mouths had been more or less sore from using mercury, either in the house or at the cholera hospitals; one death he particularly remembers, where there was extreme pytalism. The most efficacious treatment for congestion, he finds to be cupping in the temples, or opening the temporal artery, and the application of vesicatories to the back of the head and neck. I saw in the house a woman who had had the venous injection performed on her at Crosby-street hospital. She says she was not sensible of their performing the operation. She has now been some weeks in the convalescent hospital, believed to have a cardiac affection, to which she says she was not before subject.

Some of the convalescents, in their tongues, countenances, &c. looked like mild cases of bilious fever. There was none with congestion or consecutive fever.

BELLEVUE.

August 28th.—Though quite aware that no cases of malignant cholera were to be seen at Bellevue, yet it was a name that had so much fixed my attention, as connected with a frightful mortality, almost from the very commencement of the epidemic at New York, that I had great anxiety to get some explanation of such rarely exemplified fatality, and therefore to-day I visited it. I was fortunate enough to meet with Dr. Morrell, of the hospital, of whom one of the members of the Boston medical deputation had spoken to me, as capable of furnishing much information regarding cholera. Bellevue is the name of the place where some public buildings, chiefly charitable institutions, are erected, viz. an alms or poor-house, a hospital, as well in connexion with this, as to receive poor patients from other parts, and a gaol or penitentiary. At the time of the appearance of cholera, there were in or connected with these asylums nearly two thousand persons. More than a fourth of this number took the disease, and three hundred and twenty have been carried off by it, not the whole, however, from amongst the sojourners in this establishment, as some cases were received from the neighbourhood. The introduction of the disease from without, is not satisfactorily shown.

I asked Dr. Morrell the cause of so much mortality where the patients could have medical advice, as I supposed, at the earliest period of the disease. He said the disease came upon them unawares, they had not for some time sufficient medical assistance, nor did they readily obtain adequate additional aid, and they were very deficient in good nurses, from an unwillingness to employ or go to the expense of employing people from outside the institution; hence the great mortality when the disease was once formed. And with regard to calling for advice during the time the premonitory diarrhoea, or other prefatory symptom lasted, the people were not at first convinced of the necessity of this, and even at the present day will neglect it if not closely questioned on the point.* Then consider the condition of those who became the subjects of this dire disease—upwards of two hundred of them patients in the hospital; labouring under acute and chronic diseases, in their different stages, the inmates of a consumptive ward, for instance, where the cholera began at one end and swept all away to the other, with, I think, a single exception, only, however, hastening their deaths a few days or weeks. And of the eight or ten hundred inmates of the alms house, what a large proportion of worn down constitutions, from intemperance, hardships, disease and age. Such were the explanations of Dr. Morrell.

Connected with the hospital, is a lunatic asylum. Here the disease was equally destructive, and spread in the same degree, in the entire freedom, we must conceive, from the unfavorable influence of fear. The being incompetent to complain early, would operate unfavorably on such subjects as these. After making a large number of dissections, Dr. Morrell referred me to the statement in Andral's pathology on this subject, as containing all he could tell me about the post mortem appearances.

* This is fully confirmed by the report of the Committee of the Select Medical Council, appointed to enquire into the circumstances which put a stop to the prevalence of cholera at Bellevue. This report shows that this happy effect was chiefly produced by daily medical inspection of every individual, not confiding to any the care of reporting their own illness.

QUESTIONS

RELATIVE TO

MALIGNANT CHOLERA.

Submitted to the Select Medical Council of New York ;

WITH THE

ANSWERS OF THE COUNCIL.

QUESTION 1.—What is positively known regarding the introduction of Cholera into New York, Albany, Philadelphia and other Cities, Towns and Villages of the United States, and of its subsequent propagation amongst their inhabitants; as well as of its introduction and spreading in public establishments, as at Bellevue, Sing Sing prison &c.?

ANSWER.—No satisfactory proof has been obtained, that Cholera was introduced from abroad into either of the places named in this question.

Q. 2.—Are there any facts showing its communication to be by contact, rather than by infection, through vitiation of the air in houses, wards and districts, where there are Cholera subjects; or the reverse?

A.—There are no facts within our knowledge, that go to prove that Cholera is communicable by contact. The disease does appear to be produced, by infection: that is, there appears to be a local concentration of influences capable of producing the disease, sometimes confined to one house, and sometimes embracing a considerable neighbourhood.

Q. 3.—What are the most remarkable facts recorded on this point, as having fallen under the observation of any medical practitioner, or other intelligent person, on whose discernment reliance may be placed?

A.—There have been many instances, in which the disease has appeared to be communicated from one person to another, but they have been chiefly in the country, and for the most part among those who were predisposed by their habits to take the disease. Many instances might be collected that have come to our knowledge, in which healthy persons have contracted the disease by spending a day or a night, but especially the latter, in one of the situations alluded to in the last reply.

Q. 4.—Has it been generally remarked, that the occurrence of one case of Cholera in a house or family, has been followed by other cases, often by seizures of the majority of a family, or of the inmates of a house?

A.—Cases of Cholera have often been single. But in many cases a large number have been taken in the same house; one or two or more cases continuing to be furnished daily for some time—On the other hand, five or six have been taken with the disease in the same house within twenty four hours.

Q. 5.—Have many of the Physicians of New York had the premonitory symptoms of Cholera, or the fully formed disease?

A.—We are unable to say.

Q. 6.—How many have died of the disease?

A.—Eight physicians have died of Cholera in the City or its immediate environs. Their disease and death were ascribed in almost every instance to excessive fatigue.

Q. 7.—Is it known, if any of these had neglected a diarrhoea or other premonitory symptoms, or disregarded the cautions given to the public regarding food and drink?

A.—It is not known.

Q. 8.—Have many of the medical attendants, nurses, labourers and others employed at the Cholera Hospitals, in burying the dead, carrying the sick &c. had Cholera or the premonitory symptoms?

A.—Many of the nurses have had Cholera in the hospitals. But not any of the other attendants. The nurses are for the most part persons of broken constitutions, and intemperate habits. This circumstance, when united with the fatiguing nature of their duties fairly entitles them to Cholera.

Q. 9.—How many of the persons thus employed have died of the disease at each hospital?

A.—It is not yet known.

Q. 10.—Is it to be inferred from these cases having terminated fatally, under circumstances where it may fairly be presumed the earliest advice would be sought, as well for the premonitory symptoms, as for the actual attack of the disease, that a portion of cases are uncontrollable by medicine, however timely attended to?

A.—The remarks under 4—9, are abundantly sufficient to explain their deaths from Cholera.

Q. 11.—Of Clergymen how many have had the disease, and how many have died?

A.—None in town—one at Harlem, eight miles from New York.

Q. 12.—How many cases of Cholera have been reported in New York to this date (30th. August)?

A.—5811 cases reported.

Q. 13.—How many deaths, according to the reports of Physicians, and also according to the report of the city inspectors have there been?

A.—2228 deaths reported.

2829 buried.

592 not reported.

Q. 14.—What is the cause of the discrepancy of these reports?

A.—Quacks do not report, but it is well known that *they kill*. Many physicians are dissatisfied with the Board of Health, and do not choose to report.

Q. 15.—How many cases have been admitted into all the hospitals established by the Board of Health, and into that at Bellevue, for Cholera.

A.—2014 Patients have been treated in our hospitals to this date—555 at Bellevue.

Q. 16.—Of these how many were in a state of collapse, either incipient or fully formed, at the time of admission, and how many in advanced collapse and moribund?

A.—Not known at present. (Returns yet expected.)

Q. 17.—How many deaths have occurred in all the hospitals and at Bellevue?

A.—In the Hospitals 551. At Bellevue 321.

Q. 18.—Of those in incipient collapse what proportion have recovered? In fully formed collapse what proportion?

A.—Not yet known.

Q. 19.—Are any cases satisfactorily established of the communication of the disease by clothing or other articles taken from situations where they might have been impregnated with the seeds of the disease?

A.—None. Some accounts have been received from the country which favour this supposition, but they require confirmation.

Q. 20.—If so, how long subsequently to the time of acquiring this deleterious property, are such articles known to have communicated the disease?

A.—See last reply.

Q. 21.—What are the general, the shortest, and the longest periods of time satisfactorily known to have elapsed from the date at which the seeds of the disease might have been imbibed by any individual, to the time of its symptoms manifesting themselves?

A.—In most of the cases which have come to our knowledge (see *Answer 4*) the disease has shewn itself within two days—often in one. The longest period known is perhaps ten days.

Q. 22.—From these and other facts, is there a conclusion come to regarding the number of days an individual leaving an infected district, and proceeding to a healthy one, should be secluded, or kept in quarantine?

A.—The almost unanimous opinion in this city is, that quarantines are useless, for if the disease is infectious or contagious, the cause is of so subtle a nature, that it cannot be excluded—A fresh breeze being often found to counteract all the wisest precautions.

Q. 23.—Have any peculiarities been observed in the weather and atmosphere, as regarding vicissitudes, heat, moisture, as well since the prevalence of Cholera, as previously thereto?

A.—There has been nothing peculiar in the weather of the season—the season has been cold, wet and backward.

Q. 24.—Has any disease of a similar, or analogous nature, affected cattle, dogs or other animals?

A.—None to our knowledge.

Q. 25.—Have any been observed to sicken from living in the atmosphere of cholera, as at hospitals, with the sick, or from having taken any of the discharges of the sick?

A.—See answers to 4 and 9.*

Q. 26.—Has immunity from cholera appeared to be connected with the circumstance of having formerly had any other disease; or, on the other hand, have previous attacks of other diseases, as common cholera, dysentery,

*From not repeating the word animal in this question, there is an ambiguity, and hence the answer.

diarrhoea, gastric derangement, or hepatic disease, rendered individuals more susceptible?

A.—Nothing has appeared to afford immunity from Cholera, but perfectly regular habits and strict temperance—nor does any thing appear to create susceptibility to it but conduct and habits of an opposite character.

Q. 27.—Have second attacks, after complete recovery, been observed to occur often?

A.—There have been a number of persons attacked a second time; but it is doubtful if they were in perfect health—They should probably be regarded as relapses, which have occurred *very often*.

Q. 28.—Is there much tendency to relapse?

A.—See last reply.

Q. 29.—Have any mental or constitutional qualities been observed to dispose to the disease?

A.—None.

Q. 30.—Have any families or individuals who have rigidly secluded themselves been attacked by the disease,

A.—We know of no instances—but if they occurred, they could prove nothing; for those would be the very persons that would equally avoid *all* causes of the disease.

Q. 31.—What have been observed to be the usual exciting causes of the disease?

A.—Excess in eating and drinking—intemperate habits in particular—ninetieths of the cases being in intemperate persons. All kinds of indigestible food all kinds of green vegetables and fruit—watching with the sick—getting wet.

Q. 32.—Are the diarrhoea and gastric derangements, usually termed the premonitory symptoms, successfully treated by the same means that are found efficacious in such complaints under ordinary circumstances?

A.—Quite so.

Q. 33.—Are there any cases known wherein, notwithstanding proper and timely attention, and a duly regulated regimen, the premonitory symptoms have persisted, and terminated in spasmodic cholera?

A.—None.

Q. 34.—Have there been any cases of this disease unpreceded by premonitory symptoms?

A.—Not many; and when they did occur, it was almost always from some act of great imprudence.

Q. 35.—Do any facts show that such symptoms are really precursors of spasmodic cholera, and, if neglected, would result in that disease? From the experience of the ward physicians in treating such cases in families where there had been spasmodic cholera, information might be had on this point.

A.—Precursory symptoms are universal—so much so that it has become the common opinion that diarrhoea is the mildest form of epidemic cholera, and that cholera commences by the bowels—for when this diarrhoea is neglected, cholera in a malignant form almost invariably succeeds.

Q. 36.—For the forming disease, known by vomiting, purging and cramp, the circulation yet continuing good, what has experience taught to be the

most efficacious treatment, and what has it taught to avoid as having been found detrimental?

A.—Purgatives*—calomel particularly, and often, venesection—followed by small doses of camphor or of opium.

Q. 37.—For incipient collapse, or that stage in which with all or some of the above symptoms, especially spasms, there are a sinking circulation, a livid countenance, shrivelling of the integuments of the fingers, &c. what has been found to be the most efficacious treatment, and what of the many remedies recommended have proved injurious?

A.—External heat, hot injections, constant frictions over the whole body with an ointment of two parts mercurial ointment, and one of capsicum and camphor, each, calomel in scruple doses, often repeated, as every hour, camphor, ether, and all forms of alcoholic stimuli.—Opium has not been found of service, having a tendency to produce congestion.—The two first means are the most important

Q. 38.—For fully formed collapse, or the state of the disease in which the pulse can only be felt in the largest vessels, and even in them, is but feeble, marked characteristically by a cold tongue, sunken countenance, whispering voice, corrugation and blueness of the skin of the hands and feet, &c. what means have proved most successful?

A.—None.†

Q. 39.—In how many cases has the saline injection into the veins been practised?

A.—In six or eight cases.

Q. 40.—Of these how many were restored from the state of collapse?

A.—Not certainly known.

Q. 41.—How many have completely recovered and are now living?

A.—It is believed, only one or two.‡

Q. 42.—Is this injection still practised in New York, or is its use discontinued?

A.—The saline injections are now little thought of as a remedy, their operation appearing to be only temporary.§

Q. 43.—Has the use of camphor in this stage, as recommended by Doctor Channing and others, had a fair trial by impartial observers, and with what result?

A.—The camphor treatment has not been fully tried in the Hospitals. We have seen no detail of cases, that would justify us in recommending it to be tried alone.

*Some particular facts, and the general information in the Diary, would lead to the prohibition of purgatives (calomel excepted) properly so called, substituting the mildest laxatives, especially Gregory's mixture.

†See the practice in Crosby-street, Greenwich, and Carlar's Hook Hospitals.

‡It will be seen by these answers, even not considering Brooklin (as out of the jurisdiction of New York), that the Medical Council had not received all the information respecting venous injection that is contained in the Diary, as noted at Crosby-street, and Greenwich hospitals, and from Dr. De Kay.

§Dr. Rhinelanders and the physician who used it so frequently at Brooklin hospital, are still disposed to practise it on all convenient occasions.

Q. 44.—What treatment has proved most successful in the congestion and consecutive fever of collapsed Cholera?

A.—Salivation and venesection or topical bleeding.

Q. 45.—Is any mode of treatment of the preceding stages of Cholera, more frequently followed than another by this formidable state of congestion?

A.—It is confidently believed that the free use of calomel as above, has a tendency to prevent, and powerful internal stimulation to cause this congestion and consecutive fever.—There is least of it, when mercury is most used.

Q. 46.—What are the diagnostic symptoms of Spasmodic Cholera, and in what order do they occur?

A.—There is first a purging or diarrhoea, with evacuations like gruel or rice-water, for the most part inodorous, often colourless or like dirty water.—This is attended or followed by vomiting of the same fluid—the pulse sinks, and becomes frequent—the muscles of the legs, thighs, abdomen and arms are drawn up with cramps—the skin becomes mottled or livid, and covered with clammy sweat—the eyes become sunken and lifeless, or have sometimes a preternatural and horrible wildness. The tongue is cold and moist.—But throughout the case, the most marked and decided diagnostic is, that there is not the *least appearance* of bile—until the calomel has produced its peculiar effects, which is rarely the case until reaction occurs.—There is then a prodigious discharge of thick, dark green bile.—But this *never* occurs previously to the exhibition and operation of calomel.

This then and not the cramps, furnishes the true diagnostic symptom; the *total absence of bile*.

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CONCLUDING REMARKS.

HAVING, on my return to Halifax, forwarded to the Board of Health all the Notes and Observations I had collected at New York, relative to Malignant Cholera, for their judgement of the value of the information obtained; and their determination on the manner of communicating to the public what to the Board should be deemed of sufficient interest to merit diffusion in Nova Scotia, I felt relieved that my labours on the subject of Cholera were terminated. Not a day had elapsed, however, before I perceived, from the number and nature of the questions proposed to me, that this subject, continuing still to be one of much popular interest, and with some even of anxiety, was also one on which the most indefinite and confused ideas were generally entertained, though every person has appeared to be seeking information regarding it for the last twelve months.

It occurred to me on observing this, that from the general impressions received during my late practical application to the investigation of this disease, I might be able to make some of the chiefly interesting points more generally and clearly understood.*

The public mind, in this community, seems to have fastened on the last scene, the extremity of this disease, to characterize it as a whole. A spectre with sunken eyes, of a livid or blue colour, with shrivelled fingers and toes, a skin and tongue nearly ice-cold, pulseless, even in the large blood vessels, either suffering from severe cramps and insatiable thirst, and continually tossing about, or lying unconscious of all surrounding objects, is present to the imagination; and he who has seen the original of this, is asked if any way has been discovered to resuscitate this almost lifeless being, and if answered no, it is concluded that it is a hopeless thing, and therefore to little purpose to undertake long journeys by sea and land, only to be satisfied of what was known before. As well might the surgeon be depreciated because he cannot restore vitality to a mortified or gangrened extremity, the consequence of preceding inflammation or of being frozen, though if called during the foregoing inflammation or frost-bite, he knows in both cases how to prevent the super-vention of mortification.

With the exception, generally, of the extent [of suffering believed to attend, the above symptoms are truly those of the almost closing scene (of the advanced stage of collapse) of

* The necessity of attempting this, is greater in consequence of the Board of Health having determined to publish entire the Diary and other papers transmitted to them, without appending, as conclusions from these documents, any general directions or explanations.

malignant Cholera. But these, in most cases, would never have developed themselves, had the early stages of the disease been under the guidance of judicious medical treatment.

The stage immediately preceding this, the last or fourth stage, is characterized by an incipient sinking of the heat and pulse, an observable change of countenance and colour, with cramps, chiefly in the lower extremities, and occasionally pain at the pit of the stomach, conjoined with the two prominent symptoms of the second stage, to which this third has succeeded, viz. purging and vomiting. The duration of this third stage at New York, was generally not more than from one to four hours; and a most critical one it is. The measured, the watched use of bleeding (the most effectual mean for relieving distressing cramps); incessant frictions with camphorated mercurial ointment; to which a proportion of Cayenne pepper is added; the administration of five or ten grains of calomel, with a half or three fourths of a grain of opium; at the same time that the patient lies on the tin mattress filled with hot water, and has tins applied to other parts where the frictions are not carrying on, their application to be persisted in, or not as the heat of the body and strength of the pulse indicate, adding also if farther warmth should seem necessary, warm catmint or linseed tea, or warm water injections, are the means by which four patients out of five will at this time be saved, having two nurses for every such patient, and a physician for every ward or room where there is a patient.

The stage preceding this, or the second stage, characterized, as I have said, chiefly by purging and vomiting, to which also cramps of less severity, may already have been added, but the circulation continuing good and the temperature of the body undiminished, may last from six to twenty four hours. It is so manageable that by a treatment less vigilant and vigorous than that pointed out for the third stage, or that of approaching collapse,* by the treatment indeed usually efficacious in smart attacks of common Cholera, nineteen out of twenty cases will be here arrested, and in them the disease will consequently never assume the distinctive features of malignant Cholera.

But there is yet another stage (the first) of malignant Cholera, insignificant indeed as to the then sum of disease, but all important in the influence it has upon the consecutive stages, and consequently upon the final issue of this so dreaded malady.

In most cases this first, usually called premonitory, but more properly prefatory or introductory stage,† is marked by a simple looseness of the bowels, and that ordinarily without pain of any kind. In a small proportion of cases, there is a distention of the stomach (abdomen), an uneasiness or weight, either without or accompanying the looseness. These are the com-

* I have only noticed approaching and extreme collapse; but this state of collapse may be divided into approaching, incipient, fully formed, advanced, and extreme, differing only in the degree of intensity of the same characteristic symptoms, the difference, however, very obvious.

plaints from which few of the physicians, nurses and others employed about Cholera patients, in the Hospitals of New York, have been two days together free ; but removed or arrested by a little paregoric, laudanum or opium, either alone or conjointly with a few drops of tincture of camphor ; with at times ten or fifteen grains of rhubarb and magnesia, and, should the attack be rather sharp, bordering perhaps, on the second stage, four or five grains of calomel, confinement to bed, the application of a flannel roller on the abdomen, and of warmth to the stomach, these complaints have rarely incapacitated at all the sojourners in a Cholera atmosphere, or at least not more than a few hours, for the discharge of their duty.

As it happens to the residents in Cholera Hospitals, so it does to the inhabitant of a city or town, especially in the most infected parts of that town, and to those who cannot avoid intercourse with the diseased, but particularly to the poor in the same streets, houses or families. The disease commences with them by this introductory diarrhœa, and does not advance farther before from twelve hours to fourteen days, and in fewer than one case in a hundred never would advance further did it receive the timely check that experience and convenience are enabled to give it in Hospitals.

After this statement, it is hardly necessary for me to say why epidemic Cholera has always proved so especially the scourge of the intemperate and the indigent. Every one who is in the habit of visiting the sick-poor, has constantly occasion to regret and complain of their self-neglect, in allowing serious and even painful diseases to proceed uninterruptedly for days before they seek medical advice. Knowing this, it is nothing more than what we might expect and fear, that they should be entirely regardless of so triflingly inconvenient and little painful an ailment as is that which I have described, being generally ignorant, and also difficultly convinced, that this is a part of the so dreaded Cholera. That the intemperate should do this, is nothing surprising, seeing they are heedless in all things, and overpowered by the force of bad habits.

It might, however, have been expected that the educated, that tradesmen, merchants, physicians, clergymen, &c. who are generally aware of the importance of early attention to diarrhœa, and who also know how frequently almost every green fruit and vegetable has, as at New York, excited the disease, would attend to arrest the one, and religiously abstain from the other. Every day's experience has hitherto disappointed this reasonable expectation. Even the physician has been found to transgress the bounds of temperance, and also to disregard the first approaches of this insidious disease ; anxious to assist others, he forgets himself, and when he should be at home, perhaps in bed, he is hurrying through the streets, and worried with anxiety regarding his

† It is also in descriptions, and especially in conversation, often confounded with the second stage.

patients, until reduced by care, want of sleep, and the unchecked diarrhæa, he at length succumbs to the prevailing malady.

If the physician neglects himself for the sake of others, the merchant does it to attend to the calls of pressing business, which he will not postpone merely on account of a trivial and little inconvenient looseness of the bowels. The consequence of this is, that we hear of the death of a merchant, a man of most temperate habits, who was well enough in the morning, and engaged that day to dine with his friend, having died before midnight. This appalling account comes to us, perhaps from London, or from Quebec, and rarely have we it in our power to get circumstantial information of the preceding health of the victim: whenever we have, it will, with few exceptions, be found that he had been suffering for a day or days before from the symptoms of the first stage of malignant cholera.

The same, in substance, may be said of the other classes of society; and of most it may be affirmed, that they will not deny themselves a present gratification lest of a contingent danger, which their then actual high health flatters them they will escape. Indian corn, cucumbers, musk-melons, water-melons, &c. &c. have again and again been shewn to be the exciting causes, when eaten, of malignant cholera; but of these and of almost every other forbidden article, I found numbers daily making the freest use, even in New York. There, also, you find many, even in the day of pestilence, indulging as freely in the use of wine and spirits as they were ever used to do.

Things continuing thus, there is little moral probability, that a universally self-denying, but salutary regimen, will ever in any large community be fully combined with the necessary attention to the introductory stage of this disease, so as to ensure thereby its extinction (if unfortunately introduced) in the very bud, or its subsequent final eradication. The co-operation, however, even of the best part only of a population, with the authorities and boards of health, will very greatly mitigate the evil, and contract the sphere of the disease, as has so strikingly been the case at New York; especially remarkable in the happy consequences of the daily, indeed the morning and evening visits of physicians to every inmate of an alms-house, a prison, a penitentiary; to every body of men employed by the city authorities; to the poor of the wards to which they were appointed by the Medical council.* When it is known that, of the many physicians (generally three or four to each of the fourteen or fifteen most populous wards) employed on the last mentioned duty, some have individually had a thousand cases, the diminution of mortality by seeing them in the first, or even in the second stage, will readily be conceived to be very great.

With these explanations regarding the character and propagation of malignant cholera, its different stages, and the treatment

* It is almost incredible, that all this vigilance, which had only these people's own safety for its object, required to be supported by a degree of constraint.

for each (more fully given in the Diary, and in the Answers of the Medical Council to my Questions), I conclude these general remarks, only adding the most important measures or rules, especially as relate to diet, temperance, clothing, sleep, labour, exercise and exposure, to be observed in order to prevent an attack of Cholera when this disease has established itself in a community. This I do in the words of the select Medical Council of New York, in answer to a question of the Board of Health of that City on the subject, as being the result of an experience and observation to which my fullest concurrence in the directions can give no weight.

"In regard to DIET.—The diet should be simple, and should consist of food which is both nutritious and easy of digestion. In quantity there should be no excess; in quality, it should be that which gives the greatest strength, with the least fatigue to the digestive organs. It is also important to be remarked, that too great abstinence is as dangerous as any form of excess; and that the diet should be better and not more sparing than usual.

"The most nutritious and digestible articles are beef, mutton, or chickens, plainly cooked; eggs slightly cooked, bread made of wheaton flour, mealy potatoes and rice. We fear that this list could not be much extended, without introducing articles that would be found less wholesome.

"Among articles wholesome in any common season, but found to predispose to attacks of Cholera in this city, are all common green garden vegetables and fruits. There can scarcely a vegetable be named, that will not be found among those which have been reported to your Honorable Board as having been the cause of Cholera. Beans, peas, peaches, whortleberries, raspberries, cucumbers, cabbage, puddings containing raisins, and pies made of fruit have each been specified as the exciting cause of Cholera, in a greater or less number of cases.

"In regard to temperance, we can only say, that the slightest excess at this time, either in eating or drinking, appears, from much experience, to be attended with great danger.

"The clothing should be warm; it should be so regulated, as to prevent the danger of a chill, and at the same time, not to exhaust the system by excessive perspiration. The covering should be particularly warm about the bowels, and flannel worn next the skin.

"The regular hours of sleep should be, as far as practicable, observed; and the body should by no means be exposed, during sleep, to a draught of night air.

"Labour and exercise should be moderate; and taken, as far as possible, neither in the heat of the day nor in the night air—nor should any fatiguing or exhausting labour be performed when the stomach is empty.

"A state of debility, arising either from excess or inanition, want of rest or anxiety, is especially prone to invite an attack of this disease. It is therefore in the highest degree important, that all nurses or other persons, who watch with or attend the

sick, especially at houses where the disease has occurred, should guard themselves against this unavoidable exposure; by not suffering their stomachs to become empty, and their strength to be thus exhausted. It is also of course evident, that grief, anxiety, and all depressing passions, must operate upon the empty and exhausted system with redoubled force.

"In regard to intemperance, it is now universally known, that Cholera has a most peculiar affinity for the system of a drunkard; so much so, that it is a very rare thing for the intemperate to escape—generally speaking, it is almost as rare for the temperate and uniformly prudent to be attacked."

FINIS.

ERRATA.

- Page 4, line 38, for 260, read "160."
 " 5, " 4, for through, read "thought."
 " 10, " 51, supply after frictions, "with an unguent."
 " 12, " 16, ——— after diminished, "to him."
 " 40, " 42, the † in this line refers to the foot note in page 41.



